



# Wiley

NEW YORK · CHICHESTER  
BRISBANE · TORONTO

## THE HYDROPHOBIC EFFECT: Formation of Micelles and Biological Membranes 2nd Ed.

by C. Tanford, *Duke University*

This edition gives a simple explanation for the formation and properties of biological membranes. It includes the theoretical treatment of micelle formation, making it possible to predict (from first principles) the size and size distribution of micelles formed by many simple amphiphiles, as well as the critical concentration at which they first form.

February 1980  
0471 04893 3

246 pages  
\$24.65/£11.25

## BACTERIAL OUTER MEMBRANES: Biogenesis and Functions

edited by M. Inouye, *State University of New York, Stony Brook*

This is the first book which encompasses the wide areas of outer membrane research. It illustrates the dynamic aspects of the outer membrane, including how its individual constituents are synthesized and assembled in the outer membrane and how they function.

April 1980  
0471 04676 0

544 pages  
\$66.50/£30.35

## NMR SPECTROSCOPY: An Introduction

by H. Günther, *Professor of Organic Chemistry, University of Siegen, West Germany;*

Translated by R.W. Gleason, *Professor of Chemistry, Middlebury College, Vermont, USA*

The book deals with the principles of NMR spectroscopy and its applications to organic chemistry. The main subject is proton NMR, with chapters devoted to carbon and fluorine NMR.

April 1980  
0471 27580 8  
0471 27579 4

450 pages  
(cloth) \$64.80/£22.50  
(paper) \$23.00/£7.95

## TOPICS IN ANTIBIOTIC CHEMISTRY Vol. 3: Mechanisms of Action of Nalidixic Acid and Its Congeners; New B-Lactam Antibiotics

edited by P.G. Sammes, *University of Leeds*

The first of the two reviews in the book surveys nalidixic acid and its congeners, reports current ideas on how these drugs act, and suggests areas where further work is needed. It includes original data on these compounds.

The second review gives the first comprehensive survey on the penicillin and cephalosporin antibiotics.

January 1980  
085312 139 7

204 pages  
\$48.95/£18.50

Published by Ellis Horwood Ltd., Chichester

## TOPICS IN ANTIBIOTIC CHEMISTRY Vol. 4 The Chemistry and Antimicrobial Activity of New Synthetic B-lactam Antibiotics

edited by P.G. Sammes, *Department of Organic Chemistry, University of Leeds*

This volume of the series is devoted entirely to the  $\beta$ -lactam antibiotics on account of the sheer bulk of current research in the area. Emphasis is placed here on the chemical nature of the  $\beta$ -lactam antibiotics, and the microbiological activity of recently-developed synthetic analogues as compared with naturally-occurring materials.

March 1980  
085312 151 6

278 pages  
\$65.60/£25.00

Published by Ellis Horwood Ltd., Chichester

## PROTEIN METHYLATION

by W.K. Paik and S. Kim, *both of Temple University School of Medicine, Philadelphia*  
*Wiley Series in Biochemistry: A Series of Monographs Vol. 1*

April 1980  
0471 04867 4

300 pages  
\$36.80/£16.70



**John Wiley & Sons Limited**

Battins Lane · Chichester · Sussex PO19 1UD · England



## BIOCHEMICAL SOCIETY SYMPOSIA SERIES

- No. 36 NEUROTRANSMITTERS AND METABOLIC REGULATION**  
*Edited by R. M. S. SMELLIE* 169 pp. £4.00 (US\$12.00)
- No. 37 THE STRUCTURE AND FUNCTIONS OF EUKARYOTIC RIBOSOMES**  
*Edited by R. M. S. SMELLIE* 130 pp. £3.50 (US\$10.50)
- No. 38 NITROGEN METABOLISM IN PLANTS**  
*Edited by T. W. GOODWIN and R. M. S. SMELLIE* 351 pp. £8.00 (US\$20.00)
- No. 39 CALCIUM AND CELL REGULATION**  
*Edited by R. M. S. SMELLIE* 151 pp. £5.00 (US\$13.50)
- No. 40 THE METABOLISM AND FUNCTION OF GLYCOPROTEINS**  
*Edited by R. M. S. SMELLIE and J. G. BEELEY* 189 pp. £7.00 (US\$17.50)
- No. 41 BIOCHEMICAL ADAPTATION TO ENVIRONMENTAL CHANGE**  
*Edited by R. M. S. SMELLIE and J. F. PENNOCK* 240 pp. £10.00 (US\$20.00)
- No. 42 BIOCHEMISTRY OF THE CELL NUCLEUS**  
*Edited by P. B. GARLAND and A. P. MATHIAS* 244 pp. £15.00 (US\$20.00)
- No. 43 SUBSTRATE MOBILIZATION AND ENERGY PROVISION IN MAN**  
*Edited by P. B. GARLAND and C. N. HALES*  
228 pp. (ISBN 0 904 498 07 7) £15.00 (US\$32.00)

List of contents and authors:

*Hormonal and Metabolic Control of Proteins* by B. Chira, R. Kao, D. E. Rannels & H. E. Morgan. *The Redox State and Regulation of Amino Acid Metabolism in Man* by T. T. Aoki, R. J. Finley & G. F. Cahill, Jr. *Control of Hepatic Glucose Output by Glucagon and Insulin in the Intact Dog* by A. D. Cherrington, J. L. Chiasson, J. E. Liljenquist, W. W. Lacy & C. R. Park. *Regulation of Pyruvate Oxidation and the Conservation of Glucose* by P. J. Randle, P. H. Sugden, A. L. Kerbey & P. M. Radcliffe. *How Does Insulin Stimulate Glycogen Synthesis?* by P. Cohen, H. G. Nimmo & C. G. Proud. *Hormonal Control of Adipose-Tissue Lipolysis* by C. N. Hales, J. P. Luzio & K. Siddle. *Physiological Aspects of the Regulation of Ketogenesis* by D. H. Williamson & E. Whitelaw. *Hormonal Regulation of Ketone-Body Metabolism in Man* by K. G. M. M. Alberti, D. G. Johnston, A. Gill, A. J. Barnes & H. Ørskov. *Substrate Cycles: their Metabolic, Energetic and Thermic Consequences in Man* by E. A. Newsholme.

*Available from your bookseller or agent, or direct from*

**THE BIOCHEMICAL SOCIETY BOOK DEPOT**  
P.O. Box 32, Commerce Way, Colchester CO2 8HP, Essex

Leaflets giving details of contents of the later volumes  
are available on request



**The Radiochemical Centre  
Amersham**

Full information is available on request.  
The Radiochemical Centre Limited, Amersham,  
England. Telephone: 024-04-4444.  
In the U.S.A. and Canada: Amersham Corporation,  
Illinois 60005. Telephone: 312-364-7100  
and 800/323-9750 (Tollfree).  
In W. Germany: Amersham Buchler GmbH & Co KG,  
Braunschweig. Telephone: 05307-4691.

## What's new with tritiated thymidine?

- A wide choice of specific activities from 2-100 Ci/mmol
- A choice of solvent in most cases; aqueous solution or aqueous solution containing ethanol
- A wide choice of position of the label — in every case the specificity of labelling has been checked by tnmr

All our batches are purified by HPLC ensuring consistently high purities and good stability.

Amersham also supplies the hottest [U-<sup>14</sup>C]Thymidine — our current batch is at 559 mCi/mmol.

**For the best range of labelled  
thymidines — call Amersham**

### SPECIAL PUBLICATION No. 5

# *Safety in Biological Laboratories*

Edited by E.F. HARTREE and V.H. BOOTH

68 pp + xii

ISBN 0904498 05 0

£1.60 (U.S. \$ 3.00)

A concise, easily readable guide for workers in Life-Science Laboratories. Emphasis is on **SAFETY** rather than **DANGER**, on avoidance of risks, elimination of hazards, and on the need for safety consciousness for the benefit of others as well as the worker's own person. Among topics discussed are radiation, animals, pathogens, carcinogens and other dangerous substances, vacuum distillation, fire and electricity as well as such simple operations as emptying autoclaves and connecting plastic tubing to glass tubing. The booklet is intended for all who work in laboratories, from the newest assistant to the head of department (who may come to realize that some of their standard practices contain avoidable elements of danger). Generous discounts are offered for bulk purchase: 6-10 copies, less 10%; 11-20 copies, less 20%; 21-50 copies, less 30%; 51 copies or more, less 40%.

The booklet should help every reader to be more likely to survive and to pass on the message:  
**SAFETY IN BIOLOGICAL LABORATORIES**

CONTENTS: *Preface, Glossary, Precautions for All Laboratory Workers* by Arthur W. Hartley and Vernon Booth, *Electrical Hazards, Fire and Explosion* by Edward Hartree, *The Role of the Safety Officer* by Oliver Phillip Edmonds, *The Animal House* by Donald W. Jolly, *Microbiological Hazards* by Richard D. Barry, *Carcinogens, Mutagens, Teratogens* by Donald B. Cater and Edward Hartree, *Radiation Hazards* by Philip P. Dendy, *Subject Index*.

*Obtainable from your bookseller or agent, or direct from*



**THE BIOCHEMICAL SOCIETY BOOK DEPOT**  
P.O. Box 32, Commerce Way, Colchester CO2 8HP, Essex, U.K.

SYMPOSIA SERIES No. 44

# Biochemistry of Genetic Engineering

Edited by **P. B. Garland** and **R. Williamson**

pp. 145 (ISBN 0 904498 08 5) £12.50 (US\$27.50)

A Biochemical Society Symposium held in London in July 1978

The Biochemical Society's Forty-Fourth Symposium held at University College London in July 1978 reviewed in a two day meeting the exciting and rapidly expanding area of Genetic Engineering. Leaders in the field gave general introductions to the biochemical basis, practice and aims of many aspects of the subject, illustrated with accounts of current research. Subjects included ranged from the enzymology of restriction nucleases, ligases and polymerases, proceeded through vectors and hosts for recombinant DNA, considered in depth selected plant and animal systems, and concluded with industrial prospects and social perspectives. These excellent and well-received presentations form the basis of this publication, which will serve not only as a readable introduction to the biochemistry of genetic engineering but also as a valuable account of the activities of a number of leading laboratories as of summer 1978.

List of contents and authors:

*Preface.*

*Restriction Nucleases, Ligases and Polymerases in Genetic Manipulation* by **A. D. B. Malcolm.**  
*Safe and Useful Vector Systems* by **W. J. Brammar.**

*Plasmid Vectors for Genetic Manipulation in vitro* by **D. J. Sherratt.**

*Analysis of Restriction-Fragment Patterns from Complex Deoxyribonucleic Acid Species* by **E. M. Southern.**

*Application of Site-Directed Mutagenesis to Ribonucleic Acid and Deoxyribonucleic Acid Genomes* by **C. Weissmann, H. Weber, T. Taniguchi, W. Müller & F. Meyer.**

*Recombinant Deoxyribonucleic Acid and the Study of Human Genetic Disease: the Haemoglobinopathies* by **P. F. R. Little, J. M. Kooter, E. De Boer, G. Annison & R. A. Flavell.**

*Primary-Sequence Changes in the Differentiation of Immunoglobulin Genes* by **T. H. Rabbitts.**

*Genetic Engineering of Symbiotic Nitrogen Fixation* by **S. T. Lim, K. Andersen, K. T. Shanmugam, F. O'Gara, J. R. Mielenz, C. L. Hershberger & R. C. Valentine.**

*SV40 and Polyoma Viruses: their Analysis by Deoxyribonucleic Acid Recombination in vitro and their Use as Vectors in Eukaryotic Systems* by **P. W. J. Rigby.**

*Structures of Unintegrated and Integrated Forms of the Deoxyribonucleic Acid of Ribonucleic Acid Tumour Viruses* by **H. E. Varmus, P. R. Shank, S. H. Hughes, H.-J. Kung, S. Heasley, J. Majors, P. K. Vogt & J. M. Bishop.**

*Genetic Manipulation Advisory Group (GMAG) and the Environment for Genetic Engineering in Britain* by **R. Williamson.**

*Genetic Engineering: Do We Need It? How Would We Do It?* by **A. J. Hale.**

*Human Genetic Engineering: a Social and Political Perspective* by **K. Bergman & J. Beckwith.**

*Subject Index.*



**THE BIOCHEMICAL SOCIETY BOOK DEPOT**

P.O. Box 32, Commerce Way, Colchester CO2 8HP, Essex.

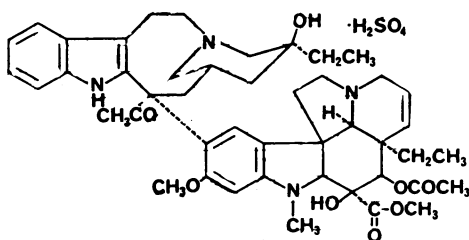


# Vinblastine and Vincristine

## Antitumor Alkaloids for Cancer Research

Known as Vinca alkaloids, vinblastine and vincristine are isolated from the plant *Vinca rosea* Linn. and exhibit antimitotic<sup>1</sup> and antineoplastic activity.<sup>2</sup> It has been suggested that the antineoplastic action of these alkaloids is a result of their antimitotic effects.

### Vinblastine sulfate



Vinblastine has been shown to be an effective antineoplastic agent.<sup>3-5</sup> It is well known that the compound disrupts cell spindles,<sup>6,7</sup> binds to the microtubule protein, tubulin,<sup>8-13</sup> and inhibits microtubule assembly.<sup>14-16</sup> Vinblastine also induces tubulin to self-assemble into coiled and tubular structures.<sup>17-19</sup> Na and Timasheff recently reported detailed sedimentation<sup>20</sup> and thermodynamic<sup>21</sup> studies on vinblastine binding to tubulin and the vinblastine-induced self-association of tubulin.

Other pharmacological effects of vinblastine include autophagocytosis,<sup>22</sup> alteration of secretory granules,<sup>22</sup> dibutyryl cAMP-mediated discharge of protein components,<sup>23,24</sup> decrease of glucose uptake,<sup>25,26</sup> and lowering of ocular pressure.<sup>27</sup>

#### References:

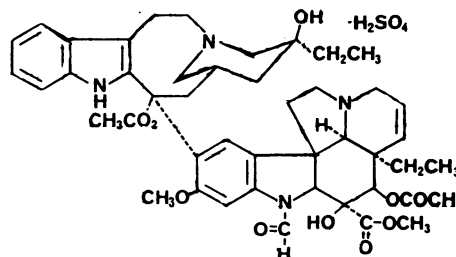
- 1) Atta-ur-Rahman, *J. Chem. Soc. Pak.*, **1**, 81 (1979) [*Chem. Abstr.*, **92**, 111191g (1980)].
- 2) T. David-Pfeuty, C. Simon, and D. Pantaloni, *J. Biol. Chem.*, **254**, 11696 (1979).
- 3) I.S. Johnson, H.F. Wright, G.H. Svoboda, and J. Vlantis, *Cancer Res.*, **20**, 1016 (1960).
- 4) J.H. Cutts, C.T. Beer, and R.L. Noble, *ibid.*, **20**, 1023 (1960).
- 5) O.H. Warwick, J.M.M. Dart, and T.C. Brown, *ibid.*, **20**, 1032 (1960).
- 6) C.G. Palmer, D. Livengood, A.K. Warren, P.J. Simpson, and I.S. Johnson, *Exp. Cell Res.*, **20**, 198 (1960).
- 7) J.H. Cutts, *Cancer Res.*, **21**, 168 (1961).
- 8) K.G. Bensch and S.E. Malawista, *J. Cell. Biol.*, **40**, 95 (1969).
- 9) S.E. Malawista and H. Sato, *ibid.*, **42**, 596 (1969).
- 10) J. Bryan, *Exp. Cell Res.*, **66**, 129 (1971).
- 11) O. Behnke and A. Forer, *ibid.*, **73**, 506 (1972).
- 12) A. Krishan and D. Hsu, *J. Cell Biol.*, **48**, 407 (1971).

- 13) S. Dales, K.C. Hsu, and A. Nagayama, *ibid.*, **59**, 643 (1973).
- 14) R.J. Owellen, C.A. Hartke, R.M. Dickerson, and F.O. Hains, *Cancer Res.*, **36**, 1499 (1976).
- 15) R.H. Himes, R.N. Kersey, I. Heller-Bettinger, and F.E. Sampson, *ibid.*, **36**, 3798 (1976).
- 16) B. Bhattacharyya and J. Wolff, *Proc. Nat. Acad. Sci. USA*, **73**, 2375 (1976).
- 17) K.G. Bensch, R. Marantz, H. Wisniewski, and M. Shelanski, *Science*, **165**, 495 (1969).
- 18) R. Marantz and M. Shelanski, *J. Cell Biol.*, **44**, 234 (1970).
- 19) R.K.N. Warfield and G.B. Bouck, *Science*, **186**, 1219 (1974).
- 20) G.C. Na and S.N. Timasheff, *Biochemistry*, **19**, 1347 (1980).
- 21) *Ibid.*, **19**, 1355 (1980).
- 22) R.B. Kelly, C. Oliver, and A.R. Hand, *Cell Tissue Res.*, **195**, 227 (1978).
- 23) A.T. Meza and M. Rieber, *Biochem. J.*, **174**, 1071 (1978).
- 24) J.F. Launay, C. Stock, and F. Grenier, *Exp. Cell Res.*, **118**, 171 (1979).
- 25) R.K. Sharma and J. Nagchaudhuri, *Pharmacology*, **18**, 91 (1979).
- 26) O. Prakash and J. Nagchaudhuri, *Ind. J. Med. Res.*, **70**, 669 (1979).
- 27) P. Bhattacharjee and K.E. Eakins, *Exp. Eye Res.*, **27**, 649 (1978).

### 21,799-9 Vinblastine sulfate

5mg \$12.95

### Vincristine sulfate



Vincristine is also very useful in cell studies involving its inhibitory effects on mitosis.<sup>1-3</sup> Like vinblastine, it is becoming increasingly important as a chemotherapeutic tool in cancer research.<sup>4-8</sup>

#### References:

- 1) W.F. Morgan and P.E. Crossen, *Mutat. Res.*, **77**, 283 (1980).
- 2) O. Redmond and A.R. Tuffery, *J. Anat.*, **129**, 731 (1979).
- 3) G. Massa, G. Bogliolo, E. Lanfranco, A. Sobrero, and I. Pannacchiulli, *Boll. Soc. Ital. Biol. Sper.*, **55**, 1099 (1979) [*Chem. Abstr.*, **92**, 87982t (1980)].
- 4) H.O. Klein, H.J. Toerner, E. Christian, C. Coerper, K.J. Lennartz, and G. Akokan, *J. Cancer Res. Clin. Oncol.*, **96**, 65 (1980).
- 5) E. Newlands and K.D. Bagshaw, *Br. J. Cancer*, **40**, 943 (1979).
- 6) T. Skovsgaard, *Cancer Res.*, **38**, 4722 (1978).
- 7) W.J. Zeller, M. Berger, and D. Schmaehl, *ibid.*, **39**, 1071 (1979).
- 8) O.C. Grush and S.K. Morgan, *Clin. Toxicol.*, **14**, 71 (1979).

### 21,798-0 Vincristine sulfate

5mg \$20.15



chemists helping chemists in research & industry

**aldrich chemical co.**

P.O. Box 355, Milwaukee, Wisconsin 53201 • (414) 273-3850

Great Britain:  
Aldrich Chemical Co., Ltd  
The Old Brickyard, New Road  
Gillingham, Dorset SP8 4JL  
England

Belgium/  
Continental Europe:  
Aldrich-Chemie  
B-2340 Beerse  
Belgium

West Germany/  
Continental Europe:  
EGA-Chemie KG  
7924 Steinheim am Albuch  
West Germany

Japan:  
Aldrich Japan  
c/o Kyodo Bldg. Shinkanda  
10 Kanda-Mikuracho  
Chiyoda-Ku, Tokyo, Japan

Israel:  
Sigma Israel Chemical Co.  
P.O. Box 37673  
Tel Aviv  
Israel 61360